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To: <NPDES_CAFO@rb5s.swrcb.ca.gov>
Date: 11/5/04 3:09PM
Subject: Additional Comments from CDQAP

Mr. Thomas Pinkos, Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Dear Mr. Pinkos:

We are taking this opportunity to provide additional comments to supplement our initial response in the form of four attached MS Word documents. It is our hope that these supplementary comments will provide details and examples which staff will find useful.

Sincerely,

Dr. Michael Payne
CDQAP Director
Coordinator

Dr. Deanne Meyer
Environmental Stewardship Module

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November 5, 2004

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Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
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COMMENTS ON THE REGION 5 ADMINISTRATIVE DRAFT NPDES PERMIT FOR CONCENTRATED ANIMAL FEEDING OPERATIONS

In September 2004, the Central Valley RWQCB (Regional Board) released an administrative draft NPDES permit for concentrated animal feeding operations (CAFOs). This document provides comments on the following subjects addressed by the permit: groundwater monitoring, Waste Management Plan (WMP), Nutrient Application Plan (NMP), and lining requirements for wastewater holding ponds.

Summary of Comments

Groundwater Monitoring: For several years, some dairies in the Central Valley Region have unknowingly applied excessive nutrients to cropland. We recognize that impacts to groundwater have occurred or will occur at some of the dairies. The excessive applications resulted from an absence of effective guidance for land application of manure and from insufficient Regional Board staff resources for adequate oversight. Monitoring at existing facilities as required by the draft permit will only confirm that impacts have occurred and will divert producer and Regional Board resources from ensuring widespread adoption of land application practices that are more protective of water quality. The first priority should be to ensure that all CAFO operators adopt land application practices that are more protective of groundwater. Until the more protective practices have been implemented, groundwater monitoring should be restricted to new facilities and certain existing facilities where data is needed to focus corrective action.

WMP: The draft permit requires that a registered civil engineer prepare a WMP and “certify” that the facility design construction, operation, and maintenance will protect water quality. The required certifications include activities outside the normal expertise of civil engineers. Furthermore, since operation and maintenance is dependent on the actions of the facility operator, it is unreasonable to expect an engineer to certify that performance standards will be met. The WMP should be revised to limit the involvement of civil engineers to activities where their participation is required by law or is essential. Furthermore, the Regional Board should require that the facility operator be involved in preparation of the WMP so that the operator understands the performance goals and has “ownership” of the plan. In order to provide support to the civil engineer, ensure consistency, and reduce costs, the permit should provide for the California Dairy Quality Assurance Program (CDQAP) to be involved in preparation of the WMP plan to the maximum extent possible. A stakeholder workgroup should be formed to revise the draft WMP.

NMP: The draft permit requires that the Discharger develop and implement a NMP and presents minimum requirements for the NMP in an attachment. USEPA staff reviewed the requirements and have indicated that they consider the requirements to be inadequate and, in particular, that technical standards are not established. United States Department of Agriculture Natural Resource Conservation Service (NRCS) staff have been working to develop Comprehensive Nutrient Management Plan (CNMP) guidance for California, and it was hoped that the guidance document would provide the necessary NMP technical standards. It now appears that the CNMP guidance will not be finalized soon enough to be used for that purpose. Regional Board staff should consult with other stakeholders and establish a plan to develop the needed technical standards and to revise

portions of the draft permit that involve the NMP. Furthermore, recently issued USEPA guidance on NMPs should be considered when making the revisions.

Wastewater Ponds: The draft permit requires the installation of liners in existing wastewater holding ponds. The high cost for such modifications is not justified by a corresponding increase in protection of water quality.

Background Information Relative to Groundwater Monitoring

Current regulations for dairies require that “*Application of manure and wastewater to disposal fields or crop lands shall be at rates which are reasonable for the crop, soil, climate, special local situations, management system, and type of manure.*” A dairy operator may consider his manure application practices reasonable because he obtains good crops without any apparent nuisances or adverse impacts. However, the practices may not be protective of underlying groundwater. Because dairy operators have not been directed to change their land application practices or been provided with relevant guidance, some dairy operators may continue to apply nutrients at rates that could adversely impact groundwater.

A study by Thomas Harter, et al., published in 2001 and titled “*Shallow Groundwater Quality on Dairy Farms With Irrigated Forage Crops*” states “Since manure-treated fields represent by far the largest land area of the dairy, proper nutrient management will be a key to protecting groundwater quality in dairy regions overlying alluvial aquifers.” Unfortunately, no guidance on manure application practices was subsequently provided to dairy operators in California. Furthermore, Regional Board staff resources have been inadequate to oversee nutrient application practices at dairies.

In the past, Regional Board staff suggested that dairy operators empty wastewater-holding ponds prior to the onset of the rainy season in order to provide storage capacity needed to protect surface water. Often the wastewater was discharged to ground that had not yet been planted. Recently developed information on the timing of nutrient applications relative to crop needs indicates that such discharges are likely to result in nutrient movement to groundwater. Depending on site conditions, salts and nutrients in such discharges may already have reached underlying groundwater or may still be moving through the overlying soil.

Groundwater monitoring data is available for about 25 dairies in Region 5. Many of the dairies were requested to conduct monitoring because of staff concerns about facility location, design, or operational practices (i.e., the dairies may not be “typical”). The monitoring data indicates that groundwater underlying some of the dairies has been impacted. However, due to a lack of staff resources, the Regional Board has not requested additional studies to characterize the impacts and has not requested that mitigation measures be implemented.

General Discussion of Groundwater Monitoring Requirements in the Draft Permit

As noted above, some existing dairies are likely to have impacted groundwater as a result of practices that have been in common use but will no longer be allowed. Given the long time that it takes to “flush” nutrients out of soil and groundwater, conducting groundwater monitoring at such facilities now will likely reflect the past practices rather than improved practices. For this reason, groundwater monitoring at existing facilities should be delayed until the improved practices have been in place for some time.

Another reason for delaying groundwater monitoring at some facilities is the associated demand on limited staff resources. Staff must review the Monitoring Well Installation Plan (MWIP) and the Monitoring Well Installation Completion Report (MWICR) prepared for each facility where groundwater monitoring will be conducted. Once monitoring data is submitted, staff must review and evaluate the data and then file it. In many cases, additional wells will be required, and another round of MWIP and MWICR review will start. All those activities will divert staff from facility inspections to verify that land application practices protective of surface water and groundwater are being utilized. Implementing and conducting groundwater monitoring will also require a substantial commitment of resources by the dairy operator. Monitoring should be delayed if it will interfere with the operator's ability to make necessary investments in waste management facilities or will prevent prompt adoption of operational practices that are more protective of water quality.

Obtaining groundwater data for all existing facilities is not a critical need in the short term. Most dairy operators will understand that their past practices were not protective and will commit to adopting practices that are more protective. It is not necessary to have data showing impacts in order to get them to agree to change. However, groundwater monitoring may be useful at sites where an operator does not agree that current practices threaten groundwater and staff needs data for further assessment.

Groundwater impacts from farming activities at dairies can be minimized by ensuring that best available practices are used for nutrient applications. Therefore, groundwater monitoring is not essential if operators apply nutrients at appropriate times at rates that do not exceed crop needs and utilize other appropriate practices. University of California Cooperative Extension (UCCE) staff and NRCS staff can assist Regional Board staff in identifying appropriate practices.

Less costly monitoring may be an acceptable alternative that in some cases may be superior to groundwater monitoring. When groundwater is deep and/or is overlain by aquatards, it may take a long time for pollutants to reach groundwater. Vadose zone monitoring or soil monitoring may be a superior initial monitoring program at such sites. Regional monitoring programs may also provide needed information at less cost to operators and the Regional Board.

Focused studies at representative dairies such as the studies by Thomas Harter may also result in enhanced groundwater protection without monitoring groundwater at all dairies. Such studies may utilize many more wells than conventional groundwater monitoring and result in better understanding of the mechanism of pollutant movement and the response to various control strategies. Desired improvements in waste management practices can then be required at dairies that have characteristics similar to the study site.

The draft permit imposes groundwater monitoring in a sequential hierarchy based on number of cows. Size alone does not relate to higher threats of groundwater impacts. Groundwater monitoring should first be focused on facilities located in areas where the potential for groundwater impacts is higher and on facilities that have other characteristics indicative of an increased threat to groundwater. The following characteristics should be considered:

- Ratio of nutrients to crop needs (e.g., "ratio of cows to acres")
- Current land application practices

- Depth to groundwater
- Soil characteristics
- Geologic setting.

The draft permit requires groundwater monitoring at land application areas and requires the monitoring to include constituents that are typical of farming operations. The Regional Board does not require other farming operations to monitor groundwater under cropland nor hold them accountable for naturally occurring soil constituents that are mobilized. Farming operations at dairy facilities should not be subjected to regulatory standards that exceed standards applied to other farming activities.

General Discussion of WMP Requirements in the Draft Permit

The California Business and Professions (B&P) Code identifies activities that can be performed only by registered engineers. Attachment C to the draft permit contains Items 1e.iii, 2, 3, 4, and 5 that are identified as “*portions of the WMP that are related to facility and design specifications and operation and maintenance*” that “*must be prepared and certified by a civil engineer who is registered pursuant to California law or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work.*” Some of the items in the specified portions do not appear to correspond to the engineering activities specified in the B&P Code; the Regional Board staff should provide a legal basis for the requirements to utilize an engineer for such activities.

Item 1e.iii of Attachment C addresses “*Size, elevation, and location of all facilities proposed for containment of process generated wastewater and storm water runoff on the property (berms/levees, holding ponds, upstream diversion structures, etc.)*” and requires that “*Cross section details of these facilities shall be presented.*” There is no basis in the B&P Code for such requests. Requiring the “size, elevation, and cross-section details” at existing facilities imposes costs on operators to hire engineers to provide detail that is not generally needed to protect water quality. Knowing with engineering precision the length of a berm or the cross section details of the berm does not appear to be necessary in many situations. Furthermore, a licensed surveyor can develop much of the information at lower cost than an engineer. The draft permit establishes the operator’s responsibility to protect water quality by having and maintaining such facilities, and it should be the operator’s decision on whether or not the services of an engineer are required.

Item 2 of Attachment C requires “*Engineering design calculations showing if the existing containment structures are able to contain all manure and process wastewater including the runoff and direct precipitation from a 25-year, 24-hour rainfall event.*” The NRCS, CDQAP, and other groups have developed procedures to evaluate the ability of containment structures to meet the storage requirements. Again, the draft permit establishes the operator’s responsibility to meet specified performance standards, and it should be the operator’s decision on whether or not the services of an engineer are required. Some operators may meet the requirement by having storage capacity far in excess of the minimum. The permit should be modified to have the operator certify that they understand the requirement and to specify how they determined that they can meet the requirement.

Item 3 of Attachment C requires “*An engineering report showing if the facility has adequate flood protection*” and specifies flood events that apply to different groups of facilities. Where Federal

Emergency Management Agency (FEMA) maps show that waste management facilities at a dairy are outside the applicable flood zone, an engineer's assessment should not be required. However, if the facilities are inside the applicable zone, it seems reasonable to require an engineer's assessment.

Item 4 of Attachment C requires "*An engineering report*" showing that "*design and construction criteria*" are met for specified facilities where animal wastes are generated. As noted above for Items 1 and 2, the draft permit establishes the operator's responsibility to meet specified performance standards, and it should be the operator's decision on whether or not the services of an engineer are required.

Item 5 of Attachment C requires submission of an "*operation and maintenance plan*" to ensure that specified activities are conducted at the dairy. Section I 3a of the draft permit states "*The registered professional preparing the WMP must certify that each component of the facility design, construction, operation, and maintenance... will protect surface water quality as required in General Specifications B.1 through B.4 and B.6 through B.18.*"

General Specifications B.1 states "*The collection, treatment, storage, disposal, or land application of wastes at the CAFO shall not result in: a discharge of waste constituents in a manner which could cause degradation of surface water or groundwater except as allowed by this Order, contamination or pollution of surface water or groundwater, or a condition of nuisance.*" The requirement that the civil engineer that prepares the WMP must certify that land application of wastes will not degrade surface water is not reasonable because the ongoing land application practices are outside the engineer's expertise and control.

General Specifications B.2, 6, 7, 14, and 19 of the draft permit addresses how portions of the facility are "operated and maintained." It is not reasonable to require a person who is not involved with the ongoing operation of a dairy to certify how the facility is operated and maintained. As indicated below, recent discharges from two dairies in the Central Valley Region indicate that an engineer cannot be held responsible for the ongoing operation and maintenance of a dairy.

1. A dairy in Stanislaus County had a release to an irrigation canal as a result of the operator's failure to properly manage a connecting pipe between a waste holding pond and the canal. Such connections are common at dairies, and the Regional Board routinely cautions operators about proper management of such connections and suggests improvements to reduce the likelihood of a release. However, in the event of a waste release, staff does not take action against the person who designed the connection.
2. A dairy in Kings County had a release of irrigation water and manure to a drainage course leading to a wildlife refuge. The release occurred as a result of actions by an employee doing the irrigation. The persons who designed the irrigation system and determined the nutrient application rate should not be held responsible for the discharge.

Involvement of the Facility Operator and Others: The draft permit does not provide for significant involvement of the facility operator or representatives of the CDQAP or producer organizations in preparation of the WMP. The operator should be involved in preparing the WMP so that he understands the plan and has a feeling of ownership in the plan. In many cases, the operator will be

aware of relevant issues that are not evident to a civil engineer who is only at the site for a brief time.

A copy of a worksheet prepared for use in the CNMP guidance being prepared for use in California by the NRCS is attached (Attachment 1). The Worksheet is being incorporated in the CDQAP evaluation program. It may be beneficial to utilize the Worksheet in preparation of the WMP and related certifications. Field representatives of producer organizations may be able to assist operators in completing the Worksheet and in understanding and implementing a WMP, especially if the operator is not proficient in reading English at the level used by civil engineers.

Item 7 of Attachment C requires “*Documentation by a qualified person, as specified in Required Reports and Notices I.2. of Order No. ___, that there are no cross-connections that would allow the backflow of wastewater into a production well or an irrigation well.*” The referenced section of the draft permit does not use the term “qualified person.”

Item 8 of Attachment C requires submission of “*The certification required in Required Reports and Notices I.3.a of Order No. ___.*” The referenced section of the permit does not provide a format for the “certification” or provide a reference that states what is required in the certification. Item 8 of Attachment C should be modified to reference Section C. 10 of the “*Standard Provisions and Reporting Requirements for NPDES Permits and Waste Discharge Requirements for CAFOs*” that is part of the draft permit.

Recommendations: A workgroup comprised of representatives of the Regional Board, State Water Resources Control Board (SWRCB), UCCE, and other appropriate agencies should be formed to revise the WMP requirements. To ensure that the revision is developed expeditiously, it may be appropriate to have Cal-EPA or other agency provide a workgroup facilitator.

General Discussion of NMP Requirements in the Draft Permit

Section D. 2a of the draft permit requires any CAFO discharging waste to a land application area to “*Develop and implement a NMP as specified in Title 40 CFR Section 412.4 and in accordance with Required Reports and Notices I.3 (b) and Attachment C.*” The cited section of Title 40 is included in Attachment B, which is part of the draft permit. Section 412.4(c)(2) requires “*Application rates for manure, litter, and other process wastewater applied to land under the ownership or operational control of the CAFO must minimize phosphorus and nitrogen transport from the field to surface waters in compliance with the technical standards for nutrient management established by the Director.*” However, 40 CFR Section 123.36 requires that California establish the technical standards for nutrient management in the state. USEPA staff has noted that the draft permit fails to establish technical standards for the NMP.

Staff from state agencies and non-government organizations (NGOs) have been working with NRCS to develop CNMP guidance for California and hoped that the guidance document would provide the necessary NMP technical standards. It now appears that the CNMP guidance will not be finalized soon enough to be used for that purpose. As a result, there are no technical standards in California that can be referenced in the draft permit.

On 7 October 2004, USEPA released a guidance document titled “***Managing Manure Guidance for Concentrated Animal Feeding Operations (CAFOs).***” Chapter 6 of the guidance document is

titled “*Developing and Using Technical Standards for the Land Application of Manure, Litter, and Process Wastewater.*” This guidance document was not available to Regional Board staff while they were developing the draft permit. However, it can now be used in developing technical standards.

Other relevant technical information that may be used in developing the technical standards is expected to be available to Regional Board staff in the near future. This information includes a report by the University of California “Committee of Consultants” and a report for a grant provided to the San Jose State University Foundation to study waste management facilities at dairies.

Specific Comments on NMP Requirements in the Draft Permit

During review of the draft permit, it was noted that portions of the permit applicable to the NMP could be revised for consistency and clarity. Similar observations were made during review of Attachment D. Suggested revisions to the draft permit and Attachment D are attached (Attachment 2).

Recommendations: Given the absence of technical standards, portions of the draft permit applicable to a NMP should be revised. Rather than expect Regional Board staff to be wholly responsible for establishing technical standards, it is recommended that a workgroup comprised of representatives of the Regional Board, SWRCB, UCCE, and appropriate NGOs be formed to develop the revisions.

Section K of the draft permit provides a sequential schedule for submission of NMPs based on the number of cows at a facility. The schedule may need to be revised if there is a delay in providing the technical standards for the NMP. Federal regulations require all CAFOs covered by a permit to develop and implement a NMP by 31 December 2006.

Liner requirements for Wastewater Holding Ponds

Section B.5 of the draft permit states “*At a minimum, retention ponds must comply with the minimum standards contained in Title 27 CCR Section 22562(d)... and must include additional lining materials necessary to comply with General Specifications B.1 and the groundwater limitations in this Order.*” Requiring “additional lining materials” in existing waste holding ponds will result in most of the ponds needing to be reconstructed. The cost for such a requirement should be justified based on an assessment of the reduction in the threat to water quality. The assessment should consider potential water quality improvement resulting from a reduction in pond seepage as a result of installing liners relative to the water quality impacts expected when the pond contents are periodically applied to cropland adjacent to or near to the pond. Also, an explanation of “additional lining materials” should be provided relative to clay soils naturally present in the pond excavation.

Section F.6 of the draft permit states “*Prior to the use of any new settling, storage, or retention pond not associated with an expansion, the Discharger shall submit a report verifying that the liner meets the requirements of this Order.*” As noted above, the “liner requirements” need to be reevaluated and clarified. Furthermore, the draft permit should be revised to consistently use either the term “Permit” or “Order” for reference rather than randomly switching between the two terms.

Initial Facilities Evaluation

Facility Name: _____ Name of Preparer: _____ Date: _____

Components	Low Risk (Rank 4)	Mod-Low Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Rank
Runoff and Wastewater Controls					
Stormwater Runoff Management	Stormwater is either diverted around feed storage areas and manured areas, or captured and stored for later land application. Facilities are well maintained and function as intended.	Stormwater is either diverted around feed storage areas and manured areas, or captured and stored for later land application. Facilities are in need of some maintenance.	Storm water typically crosses feed storage areas or manured areas some rainy seasons and is retained in corrals or on cropland.	Storm water typically crosses feed storage or manured areas each rainy season and may then flow into drainage courses that lead off the property or to waterways.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Protection of areas with manure from inundation by a waterway overflow	Whole facility is outside of any historic floodplain.	All housing, corrals, ponds, and other areas with manure are protected from overflow of waterways during a 100-yr, 24-hr storm event.	Manure storages, corrals or other manured areas are protected from overflow of waterways during a 20-yr, 24-hr storm event.	Manure storages, corrals or other manured areas are likely to become inundated during storms smaller than a 20-yr, 24-hr storm event.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Wastewater Collection (capture of wastewater from the milkbarn, corrals, etc., and stormwater that has contacted manure or feed)	All needed alleys, berms, curbs, ditches, pipelines and other drainage features are in place and in good working condition with no sign of over topping or other forms of failure.	All needed alleys, berms, curbs, pipelines and other drainage features are in place. There are signs of poor maintenance or occasional over topping or other forms of failure.	Manure or stormwater that has contacted manure or feeds seasonally runs onto fields or pastures operated by the producer.	Manure or stormwater that has contacted manure regularly runs onto land at the facility or seasonally runs off the property.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				

Components	Low Risk (Rank 4)	Mod-Low Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Rank
On-site Well Protection					
Backflow Prevention (Keeping wastes out of irrigation water supply sources)	Direct connected irrigation supplies are protected by “chemigation” check valve, and discharges to standpipes have two-pipe diameter air gaps.	Direct connected irrigation supplies are protected by “chemigation” check valve, but discharges to standpipes have less than two-pipe diameter air gaps.	Irrigation water supply discharges against a “head” of water containing manure (side inlet to a stand or box), and a check valve is in place but no chemigation valve.	Irrigation water supply discharges against a “head” of water containing manure (side inlet to a stand or box), and there is no check valve or chemigation valve.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Potential for rainfall runoff or other liquid to accumulate or run over well head site	No wells or no <u>potential</u> for water containing manure or silage leachate to flow near to well sites.	Low potential for water containing manure or silage leachate to flow near to well sites or run over wellhead site.	Surface topography is likely to cause wastewater to flow over a wellhead.	Surface depression is likely to cause accumulation of liquids at a wellhead.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Separation between facility wells and manure generation or storage areas	Wellhead is more than 100 feet up-slope from manure storage areas.	Wellhead is between 50 and 100 feet up-slope from manure storage areas OR more than 250 feet down-slope from manure storage areas.	Wellhead is between 150 and 250 feet down-slope from manure storage areas.	All other distances between wellhead and manure storage areas.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Separation between facility wells and cropland where manure is applied	Wellhead is more than 100 feet up-slope from closest cropland.	Wellhead is between 50 and 100 feet up-slope from closest cropland.	Wellhead is more than 250 feet down-slope from closest cropland.	All other distances between wellhead and cropland.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				

Components	Low Risk (Rank 4)	Mod-Low Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Rank
Management of Manure Generation and Storage Areas					
Corrals (and other areas with manure)	Corrals and other uncovered and unpaved manured areas are sloped and free of low spots in order to prevent ponding of rainfall and other water. Soils are loams or finer texture and compacted.	Corrals and other uncovered and unpaved manured areas have depressions that will likely cause ponding over 10% of the surface. Soils are loams or finer in texture and compacted.	Corrals and other uncovered and unpaved manured areas have depressions that will likely cause ponding over 20% of the surface. Soils are loams or finer in texture and not compacted.	Corrals and other uncovered and unpaved manured areas have depressions that will likely cause ponding over 30% of the surface. Soils are sandy loam or coarser.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Manure Removal from Corrals (with effort made to preserve underlying compacted soil)	No open corrals (animals confined in covered housing).	Once per week and no animals in corrals during rainy season.	Once per month and access to corrals is limited during the rainy season.	One to three times per year or animals in corrals during rainy season.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Manure Treatment (settling ponds, mechanical separators, digesters, composting, etc.)	Treatment components are in place and meet the intended purpose.	Needed treatment components are in place but do not always meet the intended purpose.	Needed treatment components are in place but do not meet the intended purpose.	Needed treatment components are not in place.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Holding Ponds for Manure and Wastewater					
Holding Pond Capacity (determined as described in Appendix 3-2)	Capacity of existing storage ponds meets or exceeds the calculated volume needed for wastewater retention and proper land application.	Capacity of existing storage ponds meets or exceeds the calculated volume needed for wastewater retention.	Capacity of existing storage ponds is less than 90% of the calculated volume needed for wastewater retention.	Capacity of existing storage ponds is less than 75% of the calculated volume needed for wastewater retention.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				

Components	Low Risk (Rank 4)	Mod-Low Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Rank
Pond Design (separation distance between pond bottom and high water table)	No regulatory requirement or there is documentation showing that separation is greater than is required by regulation.	Regulation exists and there is not any documentation showing that separation is greater than is required by regulation.	Separation is less than is required by regulation and underlying soils are clay loam or finer.	Separation is less than is required by regulation and underlying soils are loam or coarser.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Pond Construction (solids ponds, holding ponds, and tailwater ponds containing manure)	Ponds are underlain with soils that meet applicable regulations or have a liner that meets the regulations. Sidewalls have no cracks, rodent holes, or other maintenance problems.	Ponds are underlain with soils that meet applicable regulations or have a liner that meets the regulations. Sidewalls have few cracks, rodent holes, or other maintenance problems.	No data showing that ponds are underlain with soils that meet applicable regulations or have a liner that meets the regulations. Sidewalls have some erosion. Regional soils are loam or finer.	No data showing that ponds are underlain with soils that meet applicable regulations or have a liner that meets the regulations. Regional soils are sandy loam or coarser.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Holding Pond Depth Marker	Permanent marker for 25-year, 24-hr stormwater capacity marker is in place and functions satisfactorily.	Temporary marker is being used.	No marker is in place but there is no evidence of pond overflows or emergency releases.	No marker is in place and there is evidence of pond overflows or emergency releases.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Solids Accumulation in Holding Ponds	Manure management system design and operation prevents solid accumulation in pond.	Minor accumulation of solids that are periodically removed and properly managed.	Large accumulation of solids that are difficult to remove frequently and to properly manage.	Large accumulation of solids that are not removed frequently enough or are not properly managed.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				

Components	Low Risk (Rank 4)	Mod-Low Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Rank
Pumping of Holding Ponds	No evidence or history of pond overflows and ponds are pumped when timing is right for nutrient applications to cropland.	No evidence or history of pond overflows but liquids must occasionally be pumped to cropland at undesirable times to maintain capacity.	Periodic overflows occur during the winter and/or liquids must regularly be pumped to cropland at undesirable times.	Overflows occur most winters and water that is applied to land at times when it may subsequently flow off the property.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Manure Handling Equipment and Practices					
Manure Transport (hauling equipment for manure solids and conveyances for wastewater)	Pipelines, ditches, vehicles are in place and in good working condition to transfer manure to all land application areas required to achieve nutrient balance.	Pipelines, ditches, vehicles are in place to transfer manure to all land application areas required to achieve nutrient balance, but there are a few maintenance problems.	There is limited access to some fields needed to achieve nutrient balance.	No access to some of the land required to achieve nutrient balance.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Wastewater pumps and pipelines	Available, of adequate capacity, and in good working condition.	Available, capacity may be inadequate, and may need maintenance.	Sometimes unavailable and part of the system is in poor repair.	Major components of the system are absent or inoperable.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Manure Application Equipment and Practices					
Measurement of Manure Applied to Cropland	Liquid or solids measuring equipment or methods are used to quantify volumes or rates to within 10% of the target amount.	Methods of measurement are used to quantify volumes or rates to within 20% of the target amount.	Methods are in place but the accuracy is not known or is inadequate to quantify volumes or rates to within 20% of the target amount.	Methods are in place but are not used or there is not any reliable or accurate method to measure amount of manure applied to land.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				

Components	Low Risk (Rank 4)	Mod-Low Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Rank
Controlling Rate of Manure Application to Cropland	Valves, calibrated spreaders, or other equipment is adequate to control the rate of manure application.	Devices are available to control the application rate but are used infrequently or are sometimes unreliable.	Controlling devices are in place but are not used or are unreliable or often unsatisfactory.	There is no reliable or accurate method to control the rate of manure application.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Mixing Wastewater and Irrigation Water	Wastewater and irrigation water are well mixed prior to application to cropland.	Wastewater and irrigation water are only moderately well mixed prior to application to cropland.	Wastewater and irrigation water typically enters at opposite ends of pipelines and is not well mixed.	There is no method to mix wastewater and irrigation water prior to application to cropland.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Land Application Equipment (for wastewater and manure solids)	There is a method to apply manure to all land needed to achieve nutrient balance, and all equipment is in good working condition.	There is a method to apply manure to all land needed to achieve nutrient balance, but equipment needs maintenance.	There is no documented method to apply nutrients, or equipment is in place but is not reliable or needs repair.	There is no documented method to apply nutrients, or equipment needed for land application is missing or unrepairable.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Inspection and Maintenance of Structures and Equipment					
Maintenance of Structures	Storage and diversion structure inspected weekly. Cracks and holes repaired. Bottom of holding pond intact after solids removed.	Storage structure inspected monthly. Cracks and holes repaired. Bottom integrity maintained during solids removal.	No regular inspections are made. Bottom integrity maintained during solids removal.	No regular inspections are made. Integrity of bottom possibly destroyed during solids removal.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				

Components	Low Risk (Rank 4)	Mod-Low Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Rank
Maintenance of Equipment	All equipment necessary to manage manure is inspected and maintained on a regular basis and inspections are documented.	All equipment necessary to manage manure is inspected and maintained on a regular basis but inspections are not documented.	Equipment used to manage manure is not regularly inspected, but maintenance is performed on a regular basis and documented.	Equipment used to manage manure is not regularly inspected, and maintenance is not performed on a regular basis.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Physical Controls for Manure Application to Cropland					
Cropland Management for Irrigation - Furrow and Border Irrigation	Field slopes are appropriate and uniform. Field lengths are appropriate for flow rates and soil types (see Chap. 4).	Field slope is uneven and in some areas is not appropriate. Field lengths are appropriate.	Field slopes are generally appropriate and uniform, but filed lengths are somewhat excessive.	Low spots in the field impede water advance. Field lengths are excessive for flow rates and soil types.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Cropland Management for Irrigation - Contour flood irrigation	Distribution ditches and turnout points (cuts) provide uniform coverage to 90% or more of the field surfaces.	Distribution ditches and turnout points provide uniform coverage on 80% to 90% of the field surfaces.	Distribution ditches and turnout points provide uniform coverage on 70% to 80% of the field surfaces.	Distribution ditches and turnout points provide uniform coverage on less than 70% of the field surfaces.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Manure Containment During Application to Cropland	Setbacks, screens or other means are used to keep manure onsite during application. As a result, the application process is not difficult to manage.	Because physical controls and equipment are inadequate, careful management of application is necessary to prevent manure movement off the site.	Physical controls and management practices are inadequate to prevent manure movement off the site, but such movement does not threaten water quality.	Manure movement off the site occurs and can threaten water quality.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				

Components	Low Risk (Rank 4)	Mod-Low Risk (Rank 3)	Mod-High Risk (Rank 2)	High Risk (Rank 1)	Rank
Manure Containment Following Application to Cropland	Irrigation runoff is prevented, or a tailwater recovery system is in place, is of adequate capacity, and is in good working condition.	Irrigation runoff is confined to fields by using berms, ditches, berms, etc. There is no runoff to waterways.	Tailwater is confined to fields using ditches, berms, etc. Runoff to waterways sometimes occurs but waste constituents are at low levels.	Tailwater is allowed to run onto neighboring property or into drainage courses leading to waterways.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Other Controls					
Rainfall or irrigation induced erosion from land where manure is applied	No evidence of erosion from fields and no noted potential for such erosion to occur.	Noted <u>potential</u> for erosion from fields but no evidence that such erosion has occurred.	Evidence of minor rilling or other forms of erosion from fields	Evidence of significant rilling or other forms of erosion from fields	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Mortality Management	Mortality is quickly picked up by a rendering service or is quickly transported to a commercial disposal facility.	Mortality accumulates for several days before being picked up by a rendering service or sent for disposal.	Mortality is treated on site in a facility that is permitted by the appropriate regulatory agencies.	Mortality is treated or disposed on site without a permit from the appropriate regulatory agencies.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				
Animal Access to Waters that Flow Through the Site	There are no waterbodies that transect the site, or animals do not have access to such waterbodies.	Facilities to prevent animals from accessing waterbodies are poorly designed or maintained.	Animals routinely have access to waterbodies that only flow off site during storm events.	Animals routinely have access to perennial flowing waterbodies.	
	Optional Comments: describe any concerns, noted problems, planned improvements, etc.*				

* The problems and planned improvements identified above should be reviewed and used to develop a planned schedule for improvements. The schedule for improvements should be addressed in Chapter 7 of the CNMP.

Suggested Revisions to Portions of the Draft Permit Addressing the NMP

To enhance clarity and consistency, portions of the draft permit relating to the NMP should be revised as indicated below.

Section A 9: *“The discharge of storm water runoff to surface water from a land application area where manure or wastewater has been applied is prohibited unless the land application area has been managed to prevent runoff consistent with a certified Nutrient Management Plan (NMP) and the manure and/or wastewater has been incorporated into the soil”*

Suggested Revision: The discharge of stormwater or tailwater to surface water from cropland where manure or other waste has been applied is prohibited unless the application was made in accordance with Section B 19 of this Order and the discharge will not adversely affect beneficial uses of the receiving water as specified in the applicable Basin Plan.

Section B 19: *“The disposal of manure, process-generated wastewater, or process wastewater to the land application area must be done in a manner that is consistent with a certified NMP”*

Suggested Revision: The application of manure and other wastes to cropland must be made in accordance with a NMP that is prepared as specified in Section I 3 b of this Order and certified as described in Section C 10 of the Standard Provisions referenced in Section F 1 of this Order.

Section D 1: *“Discharge of CAFO wastes, or clean water applied to the land application area shall not cause the underlying groundwater to contain any waste constituent, degradation product of CAFO wastes, or any constituent of soil mobilized by the interactions between applied wastes and soil or soil biota, to exceed the groundwater limitations set forth in this Order.”*

Suggested Revision: Application of manure and other wastes to cropland under control of the Discharger shall be made pursuant to Section F 7 of this Order and shall not by itself, or by interaction with any soil constituent, cause the underlying groundwater to exceed the limitations in Section E of this Order.

Section D 2: *“The discharge of waste to any CAFO land application area is subject to the following requirements:”*

Suggested Revision: The application of nutrients from manure and other sources to any cropland under control of the Discharger shall meet the following conditions:

Section D 2 a: *“Develop and implement a NMP as specified in Title 40 CFR Section 412.4 and in accordance with Required Reports and Notices I.3 (b) and Attachment C; and”*

Suggested Revision: Nutrients are applied as described in a NMP prepared as specified in Section I 3 b of this Order; and

Section D 2 b: *“Maintain the records specified in Title 40 CFR Section 412.37 (see Attachment B, which is made part of this Order)”*

Suggested Revision: Records are prepared and maintained as specified in Title 40 CFR Section 412.37 (see Attachment B, which is made part of this Order).

Section D3: *“The application of manure or process wastewater to cropland shall be consistent with reasonable agronomic loading rates that preclude development of vectors or other nuisance conditions and that will not exceed the amount needed to meet crop demand at the time of application or stage of crop growth considering the crop, soil, climate, irrigation management system, type of manure, and special local conditions.”*

Suggested Revision: The application of manure and other wastes to cropland shall be at rates that minimize vectors and other nuisance conditions and do not exceed the nutrient requirements for the crop at the time of application based on the stage of crop growth, soil, climate, irrigation management system, type of manure, and local conditions.

Section D 4: *“... Applied manure shall be incorporated into the soil as soon as practicable.”*

Suggested Revision: ... Except on pasture, solid manure applied to land shall be incorporated into the soil as soon as practicable.

Section D 6: *“Process wastewater shall not be applied to land application areas during periods when the soil is at or above field capacity unless consistent with a certified NMP.”*

Suggested Revision: Manure or wastewater shall not be applied to cropland during periods when the soil is at or above field capacity unless the application is specifically allowed in a certified NMP.

Section E: *“Discharge of waste at the CAFO shall not, itself or in combination with other sources, cause the underlying groundwater to be degraded, to exceed water quality objectives, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.”*

Suggested Revision: Wastes generated at the CAFO shall be managed and discharged in a manner that alone or in combination with other sources:

- a. Does not cause a condition of pollution or nuisance;
- b. Minimizes degradation of water;
- c. Does not adversely affect beneficial uses of underlying groundwater; and
- d. Does not cause underlying groundwater to exceed water quality objectives

Section F 7: *“If plans for animal waste disposal include application to land not under the ownership of the Discharger, the Discharger’s NMP shall include this land and the Discharger shall provide to the Executive Officer a copy of a written agreement with the property owner that specifies plans for the use and management of the offsite cropland.”*

Suggested Revision: Manure from the CAFO may only be applied to cropland not under the same ownership as the CAFO if:

- a. The application is made in accordance with Section B 19 of this Order, and
- b. The owner or operator of the CAFO provides the Executive Officer with a copy of a written agreement showing that the owner of the cropland permits such application.

Section I 3 b: *“... The NMP must be submitted to the Executive Officer and must ultimately provide protection of both surface water and groundwater.... The initial NMP shall incorporate the elements specified in Attachment C and the requirements specified in Title 40 CFR Section 412.4(c)(1)-(c)(5) based on a field-specific assessment of the potential for pollutant*

transport to surface water. The initial NMP related to the application of wastes at agronomic rates shall be developed and certified by a Professional Soil Scientist, Professional Agronomist, Professional Crop Scientist, or Crop Advisor certified by the American Society of Agronomy or by a Technical Service Provider certified in Nutrient Management California by the National Resource Conservation Service (NRCS). Groundwater monitoring will be used to determine if implementation of the NMP is protective of groundwater quality.”

Suggested Revision: The initial NMP shall:

- a. Be based on a field-specific assessment to prevent transport of waste constituents to surface water at levels that adversely affect beneficial use as specified in the applicable Basin Plan;
- b. Address the need to minimize the movement of nutrients below the root zone;
- c. Be submitted in accordance with the “Schedule of Tasks” Section K 1 of this Order;
- d. Incorporate the elements specified in Attachment C and the requirements specified in Title 40 CFR Section 412.4(c)(1)-(c)(5);
- e. Be developed and certified by a Professional Soil Scientist, Professional Agronomist, Professional Crop Scientist, or Crop Advisor certified by the American Society of Agronomy or by a Technical Service Provider certified in Nutrient Management in California by the National Resource Conservation Service (NRCS);
- f. Be updated when conditions upon which it is based change significantly or if the Executive Officer requests that additional information be included;
- g. Be maintained on site and provided to Regional Board staff for review upon request; and
- h. Be copied and the copy submitted to the Executive Officer upon request.

Suggested Revisions to Attachment D “Nutrient Management Plan for the Land Application Area for Existing Concentrated Animal Feeding Operations (Milk Cow Dairies)”

First paragraph, forth sentence: “*Groundwater monitoring will be used to determine if implementation of the NMP is protective of groundwater quality*”

Comment: “Relying on groundwater monitoring may not adequately protect groundwater. Other techniques such as ensuring that nutrients are not applied above specified rates, soil sampling, and vadose zone monitoring may be more appropriate mechanisms in some instances.

Suggested Revision: The Executive Officer may require that groundwater monitoring be used to assist in assessment of the effectiveness of the NMP for protection of groundwater quality.

Item 1: “*The address and/or Assessors Parcel Number and a description, including number of acres, crops, drainage practices, ownership, etc., of existing and proposed croplands designed to receive manure and/or wastewater.*”

Comment: The Discharger must provide the Assessors Parcel Number (APN); an “address” is not adequately descriptive of most cropland. A complete list of required information should be provided rather than using “etc.”

Suggested Revision: The last phrase “*existing and proposed croplands designed to receive manure and/or wastewater*” should be revised to state “cropland that receives manure or other wastes.”

Item 2: *“An estimate of the volume of manure or wastewater applied annually to cropland.”*

Comment: The “volume” of waste is not very useful information. What should be requested is the approximate quantity of nutrients in manure and other wastes applied annually to cropland.

Item 3: *“The proposed method of waste application and measures to comply with Prohibitions A.7, 8, and 9 and Land Application Specifications D.1 through D.6 of Order No. ____.”*

Comment: Asking for the “*proposed method of waste application*” is confusing. The NMP is a description of a process that the Discharger will follow to apply manure and other nutrients to cropland and may include several application methods. With respect to the “*measures to comply with Prohibitions...and Land Application Specifications*,” the NMP is itself essentially a compliance plan. To request a Discharger to excerpt specific measures appears redundant and unnecessary.

Item 5: *“A demonstration that where manure or wastewater is to be applied to either on-site or off-site land as a fertilizer (i.e., reclaimed), the applications are at rates reasonable for the crop, soil, climate, special local situations, management systems, and type of manure. The demonstration must include calculations showing that the proposed nutrient loading to the cropland, including the nutritive value of manure, wastewater, bedding, chemical fertilizers, and irrigation water is consistent with reasonable agronomic loading rates and will not result in the development of vectors or other nuisance conditions and will not exceed the amount needed to meet crop demand at the time of application or stage of crop growth.”*

Comment: The meaning of the terms “demonstration,” “reclaimed,” and “reasonable” are not clear in the context of the statement. Also, the wording should be consistent with the associated permit.

Suggested Revision: Calculations showing that nutrient applications to cropland, including the nutrients in manure, wastewater, bedding, chemical fertilizers, irrigation water, and any other significant nutrient source, is at rates that minimize vectors and other nuisance conditions and do not exceed the nutrient requirements for the crop at the time of application based on the stage of crop growth, soil, climate, irrigation management system, type of manure, and local conditions.